1. A method for producing an RNA-loaded antigen presenting cell (APC) that presents on its surface a tumor antigenic epitope encoded by tumor-derived RNA, wherein the epitope induces T cell proliferation, said method comprising:

introducing into an antigen-presenting cell *in vitro* tumor-derived RNA comprising tumor-specific RNA that encodes an antigen that induces T cell proliferation and tumor immunity, thereby producing an RNA-loaded APC that presents on its surface a tumor antigenic epitope encoded by the tumor-derived RNA, wherein the epitope induces T cell proliferation.

2. The method of claim 1, wherein said APC is a dendritic cell.

3. The method of claim 1, wherein said APC is a macrophage.

4. The method of claim 1, wherein said APC is an endothelial cell.

5. The method of claim 1, wherein said APC is an artificially generated APC.

6. The method of claim 1, wherein said RNA is tumor-derived RNA that comprises poly A^+ RNA.

7. The method of claim 1, wherein said RNA is tumor-derived RNA that comprises cytoplasmic RNA.

8. The method of claim 1, wherein the RNA is introduced into the APC by contacting the APC with the RNA in the presence of a cationic lipid.

9. The method of claim 1, wherein said RNA is tumor-derived RNA that is provided as a fractionated tumor extract that is fractionated with respect to a non-RNA component of the tumor extract.

10. The method of claim 1, further comprising introducing into the APC RNA encoding an immunomodulator.

11. The method of claim 10, wherein the immunomodulator is a cytokine.

12. The method of claim 10, wherein the immunomodulator is a costimulatory factor.

13. The RNA-loaded APC produced by the method of claim 1.

14. A method for treating or preventing tumor formation in a patient, said method comprising administering to the patient a therapeutically effective amount of the RNA-loaded APC of claim 13.

15. The method of claim 14, wherein the tumor-derived RNA is derived from said patient.

16. The method of claim 1, wherein the tumor-derived RNA is derived from fixed tissue.

17. The method of claim 14, wherein the tumor-derived RNA is derived from a donor patient.

18. A method for producing a cytotoxic T lymphocyte that is cytotoxic for a cell which presents a tumor antigen (CTL), said method comprising:

providing a T lymphocyte;

contacting said T lymphocyte *in vitro* with the RNA-loaded APC of claim ~~13~~; and

maintaining said T lymphocyte under conditions conducive to CTL proliferation, thereby producing a CTL that is cytotoxic for a cell which presents a tumor antigen.

subc5

19. A CTL produced by the method of claim 18.

20. A method for treating or preventing tumor formation in a patient, said method comprising administering to the patient a therapeutically effective amount of the CTL of claim 19.

21. The method of claim 20, wherein the T lymphocyte is derived from said patient.

22. The method of claim 20, wherein the T lymphocyte is derived from a donor patient.

23. The method of claim 20, wherein the tumor-derived RNA is derived from a tumor of said patient.

24. The method of claim 20, wherein the tumor-derived RNA is derived from a donor patient.

subC6

25. The method of claim 1, wherein the tumor-derived RNA is derived from a melanoma.

26. The method of claim 1, wherein the tumor-derived RNA is derived from a bladder tumor.

27. The method of claim 1, wherein the tumor-derived RNA is derived from a tumor selected from the group consisting of breast cancer tumors, colon cancer tumors, prostate cancer tumors, and ovarian cancer tumors.

28. The method of claim 1, wherein said RNA is isolated from a cell.

29. The method of claim 1, wherein said RNA is prepared by amplification and *in vitro* transcription.

30. The method of claim 1, wherein said RNA is tumor-derived RNA that comprises nuclear RNA.

31. The method of claim 1 wherein said RNA comprises a minigene.

32. The method of claim 1, wherein said RNA is prepared by *in vitro* transcription.

33. A method for producing an RNA-loaded antigen presenting cell (APC) that presents on its surface a pathogen antigenic epitope encoded by the RNA, wherein the epitope induces T cell proliferation, said method comprising:

introducing into an antigen-presenting cell *in vitro* pathogen-derived RNA consisting essentially of RNA encoding a pathogen antigen that induces T cell proliferation and an immune response to the pathogen, thereby producing an RNA-loaded APC that presents on its surface a pathogen antigenic epitope encoded by the RNA, wherein the epitope induces T cell proliferation.

34. The method of claim 33, wherein said APC is selected from the group consisting of dendritic cells, macrophages, and endothelial cells.

35. The method of claim 33, wherein said APC is an artificially generated APC.

Sub C9

36. The method of claim 33, wherein said RNA is tumor-derived RNA that comprises poly A^+ RNA.

37. The method of claim 33, wherein said pathogen-derived RNA is derived from a virus.

38. The method of claim 37, wherein said virus is selected from the group consisting of Hepatitis viruses, human immunodeficiency viruses, influenza viruses, poliomyelitis viruses, measles viruses, herpes viruses, mumps viruses, and rubella viruses.

Sub C10

39. The method of claim 33, wherein said pathogen-derived RNA is derived from a bacterium.

40. The method of claim 39, wherein said bacterium is selected from the group consisting of *Salmonella*, *Shigella*, and *Enterobacter*.

41. A method for producing a cytotoxic T lymphocyte (CTL) that is cytotoxic for a cell which presents a pathogen antigen, said method comprising:

providing a T lymphocyte;

contacting said T lymphocyte *in vitro* with the RNA-loaded APC of claim 33; and

maintaining said T lymphocyte under conditions conducive to CTL proliferation, thereby producing a CTL that is cytotoxic for a cell which presents a tumor antigen.

42. A CTL produced by the method of claim 41.

43. A method for treating or preventing pathogen infection in a patient, said method comprising administering to the patient a therapeutically effective amount of the CTL of claim 42, wherein said APC is loaded with pathogen-derived RNA.

44. The method of claim 18, wherein the tumor-derived RNA comprises at least 80% of polyA$^+$ RNA naturally present in a tumor cell.

45. The method of claim 44, further comprising detecting sensitization of the contacted T lymphocyte as an indication of the induction of a CTL response.

46. The method of claim 45, wherein sensitization is detected in a cytotoxicity assay that comprises detecting killing of an RNA-loaded cell that presents on its surface a tumor or pathogen antigenic epitope encoded by RNA.

47. The method of claim 45, wherein sensitization of the contacted T lymphocyte is detected as an increase in cytokine secretion by the T lymphocyte.

48. The method of claim 1, wherein said RNA comprises a sequence that encodes a polypeptide which controls intracellular trafficking of a polypeptide to which it is attached ("trafficking sequence").

49. The method of claim 1, wherein said trafficking sequence is KDEL (SEQ ID NO: 1); KFERQ (SEQ ID NO: 2); QREK (SEQ ID NO: 3); MAISGVPVLGFFIIAVLMSAQESWA (SEQ ID NO: 4); a pentapeptide comprising Q flanked on one side by four residues selected from the group consisting of K, R, D, E, F, I, V, and L; or a signal peptide.

50. The method of claim 33, wherein said RNA comprises a sequence that encodes a trafficking sequence.

51. A method for detecting an increase in tumor-specific or pathogen-specific CTL in a patient, the method comprising:

i) contacting a first sample of T lymphocytes from the patient *in vitro* with RNA-loaded APCs that present a cell-surface tumor or pathogen antigenic epitope encoded by the RNA, thereby producing a first expanded sample of T lymphocytes;

ii) administering to the patient a therapeutically effective amount of the RNA-loaded APCs that present a cell-surface tumor or pathogen antigenic epitope encoded by RNA;

iii) subsequent to the administering step, contacting a second sample of T lymphocytes from the patient *in vitro* with RNA-loaded APCs that present a

cell-surface tumor or pathogen antigenic epitope encoded by the RNA, thereby producing a s cond expanded sample of T lymphocytes;

iv) comparing sensitization of the first expanded sample of T lymphocytes with sensitization of the second expanded sample of T lymphocytes, wherein an increased level of sensitization in the second sample, as compared with the first sample is an indicator of an increase in tumor-specific or pathogen-specific CTL.

C13 cont'd

52. The method of claim 51~~,~~ wherein sensitization is measured in a cytotoxicity assay.

Sub C14

53. The method of claim 1, wherein the tumor-derived RNA is derived from frozen tissue.

Add C15

SUBSTITUTE SHEET (RULE 26)

Add a1